

the signal. The method may comprise the apparatus reducing the noise component based upon subtracting a signal of the accelerometer contact microphone from the signal of the at least one sound transducer. The accelerometer contact microphone may be located on the apparatus relative to the component with the acoustic sound from the component reaching the at least one sound transducer at about a same time as the accelerometer contact microphone receives mechanical movement based upon movement of the component. The method may further comprise using a drive signal which drives the component to generate the noise component. The at least one sound transducer may comprise two or more sound transducers, where the method comprises summing signals from the sound transducers together with delays that maximize the acoustic noise generated by the component. The method may further comprise selecting a noise removal algorithm model, for removing the acoustic noise generated by the non-acoustic component, based upon at least one signal which indicates use of one or more operations of the component.

**[0099]** An example embodiment may comprise a non-transitory program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine for performing operations, the operations comprising generating a signal from at least one sound transducer of an apparatus, where the signal is generated based upon sound received at the at least one sound transducer, where the sound includes acoustic noise generated by a component of the apparatus; and removing a noise component from the signal, where the noise component at least partially corresponds to the acoustic noise generated by the component.

**[0100]** Any combination of one or more computer readable medium(s) may be utilized as the memory. The computer readable medium may be a computer readable signal medium or a non-transitory computer readable storage medium. A non-transitory computer readable storage medium does not include propagating signals and may be, for example, but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, or device, or any suitable combination of the foregoing. More specific examples (a non-exhaustive list) of the computer readable storage medium would include the following: an electrical connection having one or more wires, a portable computer diskette, a hard disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or Flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage device, a magnetic storage device, or any suitable combination of the foregoing.

**[0101]** The apparatus may comprise means for performing any of the methods described above, such as at least one processor and at least one memory comprising software. The means may comprise any suitable components in the apparatus **10** for accomplishing the means. The method may comprise means for performing any of the method steps described above.

**[0102]** It should be understood that the foregoing description is only illustrative. Various alternatives and modifications can be devised by those skilled in the art. For example, features recited in the various dependent claims could be combined with each other in any suitable combination(s). In addition, features from different embodiments described above could be selectively combined into a new embodiment. Accordingly, the description is intended to embrace all such

alternatives, modifications and variances which fall within the scope of the appended claims.

What is claimed is:

1. An apparatus comprising:
  - at least one processor; and
  - at least one non-transitory memory including computer program code,
 the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus to:
  - generate a signal from at least one sound transducer of an apparatus, where the signal is generated based upon sound received at the at least one sound transducer, where the sound includes acoustic noise generated by a component of the apparatus, where the component is at least partially internal in the apparatus; and
  - remove a noise component from the signal, where the noise component at least partially corresponds to the acoustic noise generated by the component.
2. An apparatus as in claim 1 where the component is a camera, and where the noise component corresponds to acoustic noise generated by the camera from at least one of Auto Focus (AF) and Optical Image Stabilization (OIS).
3. An apparatus as in claim 1 further comprising at least one sensor comprising an accelerometer contact microphone configured to sense vibrations which generate the acoustic noise.
4. An apparatus as in claim 3 where the apparatus is configured to reduce the noise component based upon subtracting at least one output of the at least one sensor from the signal of the at least one sound transducer.
5. An apparatus as in claim 3 where the accelerometer contact microphone is suitably located on the apparatus relative to the component at least one of:
  - in close proximity to one another; or
  - substantially equal in distance relative to one another versus a distance between the sound transducer and the component.
6. An apparatus as in claim 1 where the apparatus is configured to use a drive signal which drives the component to generate the noise component.
7. An apparatus as in claim 1 where the at least one sound transducer comprises two or more sound transducers, where the apparatus is configured to sum signals from the sound transducers together with delays that maximize the acoustic noise generated by the component.
8. An apparatus as in claim 1 where the apparatus is configured to select a noise removal algorithm model, for removing the acoustic noise generated by the non-acoustic component, based upon at least one signal which indicates use of one or more operations of the component.
9. An apparatus as in claim 1 where the noise component comprises camera noise from operation of a camera, and the apparatus comprises means for removing the noise component from the signal comprises means for removing the camera noise from the signal.
10. An apparatus as in claim 1 further comprising:
  - a housing;
  - an electronic display connected to the housing;
  - electronic circuitry located at least partially in the housing, where the electronic circuitry comprises the at least one processor, the at least one non-transitory memory, at least one camera, a flash, a receiver and a transmitter; and
  - a battery connected to the housing.